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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/858,437	05/16/2001	Ian David Johnson	068232.000004	2487

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BRACEWELL & PATTERSON
P.O. Box 61389
Houston, TX 77208-1389

EXAMINER

ELALLAM, AHMED

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/858,437

Applicant(s)

JOHNSON ET AL.

Examiner

AHMED ELALLAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,8 and 12 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 9-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>July 30, 2001</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

On page 8, line 4; the referring numbering (270,271, 271, 272) should probably be changed to (270, 271, 272, 273).

On page 8, line 5, the term "sfcond" has a typo error.

Applicant is respectfully requested to review the specification for **numerous typographical errors**.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 7, 8, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by McKeown, The iSLIP Scheduling Algorithm for input-Queued switches, IEEE , April 1999, pages 188-201.

Regarding claim 1, with reference to figures 1, 4 and 21, McKeown discloses an arbitration method for use in selecting the connections to be made between ingress and egress ports of a memoryless cross-bar switch of a data switching system, the arbitration method comprising a three steps process involving:

a first step in which each input makes a request to each output for which it has a cell, see page 191, first column, (claimed a request phase in which each ingress port sends its connection requests to the egress ports to which a connection is required);

a second step in which each output selects the next requesting input at or after the pointer in a round-robin schedule, see description of figure 4, column 1, page 191), (claimed grant phase in which each egress port examines in a round-robin manner the requests directed to it using a grant pointer, and selects one request for grant returning a grant signal indicative of the selected request and directed to the ingress port which sent the selected request);

a third step in which if an input receives a grant, it accepts the one that appears next in a round-robin schedule, the pointer of the schedule are incremented (modulo N) to one location beyond the accepted output). See column 1, page 191, (claimed an accept phase in which each ingress port examines in a round-robin manner the received grant signals and selects one to accept thereby defining an ingress to egress port connection across the cross-bar switch, characterized in that the transition sequences for each of the grant pointers are mutually exclusive). (Examiner interpreted the incremented pointer of the scheduler at the accept phase of being incremented to a location beyond the accepted output, as being the claimed the transition sequences for each of the grant pointers are mutually exclusive).

Regarding claim 2, McKeown with reference to figure 21, shows a plurality of Accept arbiters in connection with a decision register that notify each input which cell to transmit and to configure the crossbar switch. See paragraph XI, page 199. (claimed

mutually exclusive transitions are determined by a connection matrix setting the pathways of request and grant signals).

Regarding claim 7, with reference to figure 21, McKeown discloses an iSLIP scheduler, for use in an NxN crossbar switch, the first N represent the number of ingress ports, and the second N represent N number of egress ports. (Claimed data switching system comprising a plurality of ingress ports, a plurality of egress ports, a memory-less crossbar switch), the iSLIP scheduler comprising (Examiner interpreted the Islip scheduler as being the claimed arbitration unit):

A plurality of Grant arbiters and a plurality of Accept arbiters, (claimed respective first portion for each of said ingress ports, and a respective second portion for each of said egress ports); the grant arbiters select a single input among the contending requests to implement a grant phase, See paragraph XI, page 199, (claimed each first portion being arranged to transmit connection request signals relating to required connections between the corresponding ingress port and the egress ports, to the second portions corresponding to those egress ports); each grant arbiters makes grant decisions that are passed from each grant arbiter to a an accept arbiter, see page 199, paragraph XI,

The accept round-robin arbiters (second portion) receives the grant decisions from the grant arbiters, wherein pointers are updated and a notification is made to each input which cell to transmit and for the switch configurations); (claimed each second portion being arranged to define a grant pointer having a transition séquence, to examine in a round-robin manner using the corresponding grant pointer the request

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signals directed to it, to select one request signal for grant, and to return to the first portion which transmitted that request signal a grant signal indicative of the selected request)

further with reference to figure 20, McKeown discloses that the grant arbiter is a round-robin arbiter that uses pointers in determining request grants, paragraph XI, (Claimed each first portion further being arranged to examine in a round-robin manner the received grant signals and select one to accept, thereby defining an ingress to egress port connection across the cross-bar switch);

(Examiner interpreted the round robin pointer increments by the grant arbiters as being the claimed transition sequences for each of the grant pointers are mutually exclusive).

Regarding claim 8, McKeown with reference to figure 21, shows a plurality of Accept arbiters in connection with a decision register that notify each input which cell to transmit and to configure the crossbar switch. See paragraph XI, page 199. (claimed mutually exclusive transitions are determined by a connection matrix setting the pathways of request and grant signals).

Regarding claim 12, with reference to figure 21, McKeown discloses an iSLIP scheduler, for use in an NxN crossbar switch, the first N represent the number of ingress ports, and the second N represent N number of egress ports. (Claimed data switching system comprising a plurality of ingress ports, a plurality of egress ports, a memory-less crossbar switch), the iSLIP scheduler for controlling the NxN switch as indicated in claim 7 above. (claimed data switching system comprising a plurality of

ingress ports, a plurality of egress ports, a memory-less cross-bar switch and an arbitration unit according to claim 7 arranged to control the switch).

Allowable Subject Matter

3. Claims 3-6, 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Cloonan et al, US (5,642,349); Carvey et al, US (5,734,649); McKeown et al, US (5,923,644); McKeown et al, US (6,212,182); Prabhakar et al, US (6,351,466); Horst, US (6,424,655); Calvignac et al, US (6,370,148); Black et al, US (6,614,796); Lau et al, US (6,625,121); Torudbakken et al, US (6,633,580); Calamvokis, US (6,735,212); Alleyne et al, US (6,724,779).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AHMED ELALLAM
Examiner
Art Unit 2662
March 29, 2005

A handwritten signature in black ink, appearing to read 'H. Kizou', with a long horizontal line extending to the right.

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600